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23. RECORD OF *STRUMIGENYS EMMAE* (EMERY) (FORMICIDAE: MYRMICINAE) FROM BANGALORE, KARNATAKA AND A KEY TO INDIAN SPECIES

Strumigenys – the largest Dacetine genus – comprises c. 169 species that are distributed in all the zoogeographical regions except the Palearctic (Bolton 1995). Only two species of *Strumigenys* have so far been reported from India (Bolton 1995; Bingham 1903), namely *S. godeffroyi* Mayr and *S. smythiesii* Forel which were originally described in the genus *Epitritus* Emery, and later placed in genus *Quadristruma* by Brown (1949). *Quadristruma* is a small genus containing only two species, *Q. eurycera* (Emery) and *Q. emmae* (Emery). Bolton (1983) considered that the genus *Quadristruma* Brown differs from *Strumigenys* only in the number of antennal segments and suggested that *Quadristruma* Brown would eventually fall into synonymy with *Strumigenys* Smith. *Q. eurycera* is known only from New Guinea. *Q. emmae* has been recorded widely from tropical and temperate regions of the world, and is thought to be of Afrotropical origin (Bolton 1983).

Bolton (1999) ultimately synonymized *Quadristruma* with *Strumigenys* and included *Q. emmae* and *Q. eurycera* in *Strumigenys*. There is a single record of *Q. emmae* from India, but no locality is mentioned (Bolton 1983). I now report *Strumigenys emmae* from Bangalore, India.

Strumigenys emmae (Emery) (Fig. 1a-b)

Diagnostic features: Total length 1.86 mm (Fig. 1a), HL: 0.48 mm, HW: 0.39, CI: 81.25, ML: 0.15, MI: 31.25, SL: 0.21, SI: 52.5, AL: 0.48 and PW: 0.22.

Mandibles linear, strongly curved and each with a strong fork of two long spiniform teeth in a vertical series. Anterior clypeal margin broad, projecting well beyond the mandibular bases on each side with numerous, small, spatulate to spoon-shaped hairs (Fig. 1b). Antennae 4-segmented, the scape narrow basally, but broadening to mid-length, then narrowing again to the apex. Eyes very small, situated just above the ventral scrobe margin. Pronotum more or less flat dorsally, anteriorly rounding into the sides. Metanotal grooves absent. Dorsal alitrunk and upper half of the propodeal declivity reticulate-punctate. Pronotal humeri each with a straight clavate

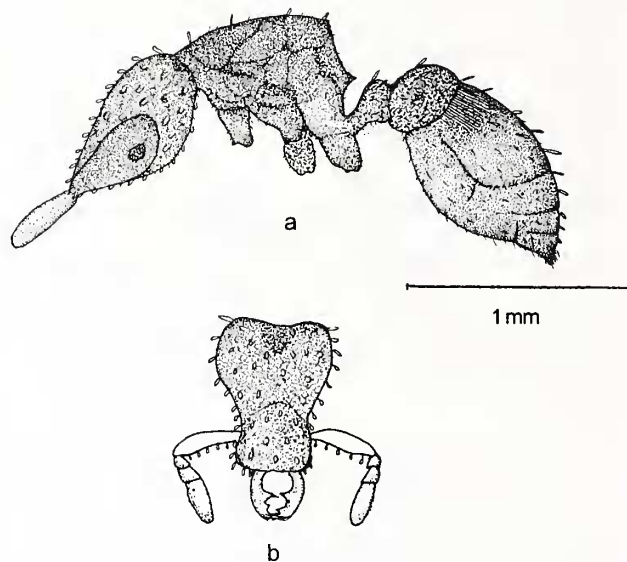


Fig. 1: *Strumigenys emmae* worker, a. Body in profile, b. Head in front view

hair. In profile, pedicel segments with spongiform appendages. Base of first gastral tergite with a continuous row of basal costulae. Petiole, post petiole and gaster with short, narrowly clavate hairs. Colour yellowish-brown.

Material Examined: 1 worker, INDIA, Karnataka, Bangalore, Indian Institute of Science Campus, Coll: Deepalakshmi & Charusheela, 1997.

Distribution: Hawaii, Guam, Florida, Puerto Rico, West Indies, Cuba, Surinam, Sumatra, Singapore and New Guinea (Brown 1949), Philippines, New Hebrides and Australia (Wilson and Taylor 1967) Bahamas (Kempf 1972), West Africa and Ghana (Bolton 1973), India, Malaysia, Sulawesi and Equatorial Guinea (Bolton 1983).

Remarks: *S. emmae* (Emery) is distinguished from other Myrmicinae by its 4 segmented antennae.

KEY TO INDIAN SPECIES OF *STRUMIGENYS* SMITH (Modified from Bingham 1903)

1. Antennae with 4 segments, mandible with 2 teeth, length less than 2 mm *emmae* (Emery)
- Antennae with 6 segments, mandible with 3 teeth, length more than 2 mm 2
2. Pronotum punctured, opaque, mandible with 3 teeth of which the apical is smallest *godeffroyi* Mayr

— Pronotum not punctured, smooth and shining, mandible with 3 teeth *smythiesii* Forel

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24. ON THE OCCURRENCE OF *MARUMBA CRISTATA* (BUTLER 1875), LEPIDOPTERA: SPHINGIDAE, IN SHIMLA, HIMACHAL PRADESH

In an earlier paper on the Hawkmoths (Sphingidae) of the Kumaon Himalaya (Smetacek 1994), *Marumba cristata* (Butler) was noted as a new record for the area. Prior to that study, D'Abrera (1986), Bell and Scott (1937) and Hampson (1892) had recorded this moth from Sikkim eastwards, with a global distribution extending to "China, Taiwan, Peninsular Malaya, Sumatra, Borneo, ?Java and ?Palawan" (D'Abrera 1986). Along this range the latter author recognized four subspecies.

Bell and Scott (1937) bred a large number of Hawkmoths in India. One of the sites where this work was carried out was Mussoorie and the Dun valley in the Garhwal Himalaya prior to 1937. They did not obtain *M. cristata* in that area, nor did the earlier collectors, such as Rev. J.H. Hocking, Mr. Graham-Young, Majors Yerbury and Harford in Garhwal and present day Himachal Pradesh. In the Himalaya west of Nepal, Mussoorie, Shimla, Kulu and Dharamsala were by far the best worked localities for moths, with fewer records from other localities such as Almora, Nainital, Dalhousie and Murree. Major Harford, in particular, collected Hawkmoths in Shimla but did not record *M. cristata* there, although he obtained rarities such as *Thaumoecha uniformis* Butler and *Langia zenzeroides* Moore.

In a paper on the Hawkmoths of Kumaon (Smetacek 1994), I suggested that this moth might have extended its range to Kumaon in the period subsequent

to Bell and Scott's (1937) study. However, since Kumaon is east of the localities surveyed in the previous studies mentioned above, there was a possibility that *M. cristata* had been established in Kumaon for centuries, as a detailed study of the moth fauna of this area had not been undertaken earlier. The confirmation of the possibility of *cristata*'s recent range extension, obviously, would lie in its appearance in localities surveyed in the second half of the 19th and first half of the 20th centuries.

On July 17, 1993, I found the right forewing of a specimen of *Marumba cristata* (4.1 cm long) on a hotel balcony on the western outskirts of Shimla town. The moth had evidently been attracted by the outdoor lights, which had been left on all night, and had fallen prey to a bird or gecko there. The wing bears over ten beak or tooth marks along the costa and at the base, none of which punctured the wing. The wing is whole and in good condition except the discal area where some scales have been rubbed off. Most of the markings beyond the discal line are clearly distinguishable, enabling it to be definitely placed as a wing of *M. cristata*.

I was unable to visit Shimla subsequently at a suitable season. This single record is of importance, even if the specimen was merely a straggler, since previous workers had not recorded it there. Therefore, it appears to have moved into the area recently, i.e. since Bell and Scott (1937) completed their studies in Mussoorie.